

## Claims

1. A method for switching route, comprising the steps of:

5        setting a correspondence relationship between a port number of each destination port and a port number of a transmitting port of a network device, wherein, the port number of each transmitting port is the corresponding port number of the destination port;

10        modifying the number of the transmitting port into the number of a backup port in the set correspondence relationship and saving the modified relationship, wherein the transmitting port and backup port are both corresponding to a fault destination port, when there is a service failure in any destination port of the network device; and

      transmitting the data packet based on the saved correspondence relationship, by the network device, after receiving a data packet.

2. The method according to Claim 1, wherein the step of the network device transmitting the data packet based on the saved relationship comprises:

15        after receiving the data packet, the network device finding out the port number of the destination port corresponding to an identifier value of the received data packet by searching an original routing table in the network device itself according to the identifier value of the received data packet;

20        the network device searching out the port number of the transmitting port corresponding to the found port number of the destination port according to the saved relationship; and

      the network device transmitting the data packet via the destination port which is corresponding to the searched out port number of the transmitting port.

25        3. The method according to Claim 1, wherein the step of setting the relationship comprises:

      setting successively the relationship of the network device according to the sequence of the port numbers of the destination port; and

      the step of the modifying comprising:

30        the network device finding the port number of the transmitting port which is corresponding to the port number of the fault destination port according to the port number of the fault destination port; and

      modifying the port number of the transmitting port into the backup port number which is corresponding to the fault destination port.

4. The method according to Claim 1, further comprising:

before the step of modifying, when every destination port in the network device runs well, the network device finding out the port number of the destination port which is corresponding to the received data packet identifier value from the original routing table in the network device itself after receiving the data packet;

5        searching out the port number of the transmitting port corresponding to the found port number of the destination port in the set relationship; and

transmitting the data packet via the destination port indicated by the port number of the transmitting port searched out.

5. The method according to any of Claim 1 to Claim 4, wherein the destination  
10 port is in the uplink direction; and the data packet is the packet transmitted in the uplink direction.

6. The method according to any of Claim 1 to Claim 4, wherein the destination port is in the downlink direction; and the data packet is the packet transmitted in the downlink direction.

15        7. A network device, comprising:

a CPU;

a first routing unit; and

a second routing unit, wherein,

the CPU is used for monitoring each destination port of a network device in real  
20 time, and when a service failure is found in any destination port of the network device, the CPU transmits the information of the service failure to the first routing unit, modifies a port number of a transmitting port corresponding to a fault destination port into the port number of the backup port corresponding to the fault destination port in the correspondence relationship between the port number of each destination port and  
25 the port number of the transmitting port which is saved in the second routing unit;

the first routing unit is used for saving the existing routing table of the network device, and it receives the information of the service failure from the CPU, finds out the port number of the destination port corresponding to the received data packet based on the self-stored routing table, and transmits the found port number of the  
30 destination port to the second routing unit;

the second routing unit is used for saving the relationship between the port number of each destination port and the port number of the transmitting port in the network device, when receiving the port number of the destination port sent from the first routing unit, searches out the port number of the transmitting port corresponding

to the received port number of the destination port in the saved relationship between the port number of each destination port and the port number of the transmitting port, transmits the data packet via the destination port indicated by the port number of the transmitting port searched out.

5        8. The network device according to Claim 7, wherein the first routing unit is further used for finding out the corresponding port number of the destination port corresponding to the currently received data packet according to the self-stored routing table in the prior art and transmits the currently received data packet via the destination port indicated by the found port number of the destination port when every  
10 destination port in the network device runs well.

9. The network device according to Claim 7, wherein the first routing unit is further used for finding out the corresponding port number of the destination port corresponding to the currently received data packet according to the self-stored routing table in the prior art and transmits to the second routing unit the found port  
15 number of the destination port when every destination port of the network device runs well; and

the second routing unit is further used for searching out the corresponding port number of the transmitting port to the port number of the destination port sent from the first routing unit in the currently saved relationship and transmits the data packet  
20 via the destination port indicated by the port number of the transmitting port searched out when each destination port of the network device runs well.

10. The network device according to any of Claim 7 to Claim 9, wherein the first routing unit is used for transmitting the found port number of the destination port to the second routing unit by carrying the number in the received data packet; and

25 the second routing unit is used for receiving the port number of the destination port from the data packet sent from the first routing unit.